L2 Repair Document

U10C/ OT-222(A)

Note: this manual is non-contractual and TCT Mobile Phones can modify without prior notice the characteristics of described equipments.

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HISTORY			
Date	Version	Author	Comments
07/08/2009	0.1	Hao Zhang	Creation of the draft
12/08/2009	0.2	Hao Zhang	Add assemble & disassemble process
25/08/2009	0.5	Hao Zhang	Update accessory & explode drawing
31/08/2009	1.0	Wendy	Update validated tools info

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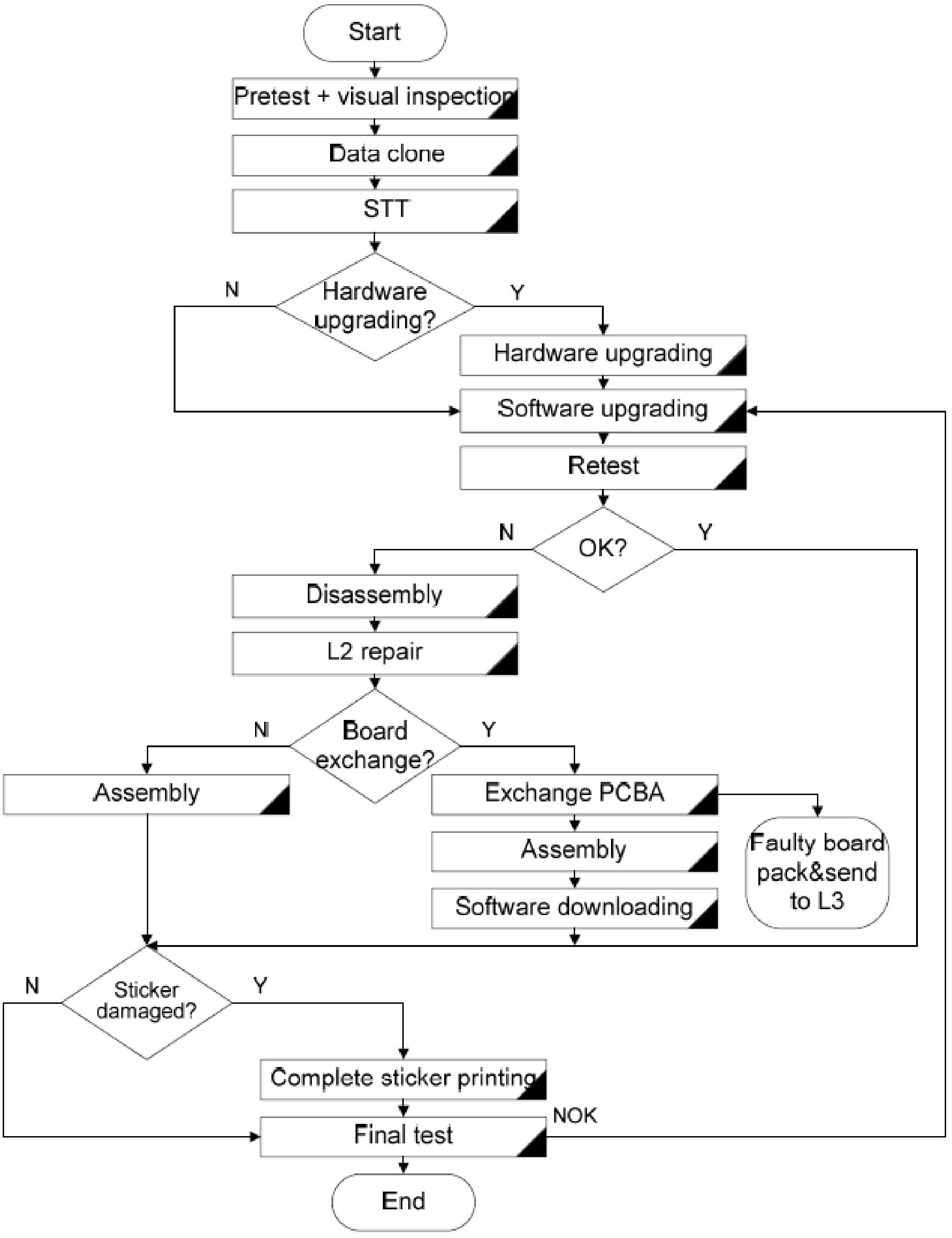
1. LEVEL 2 REPAIR PROCESS



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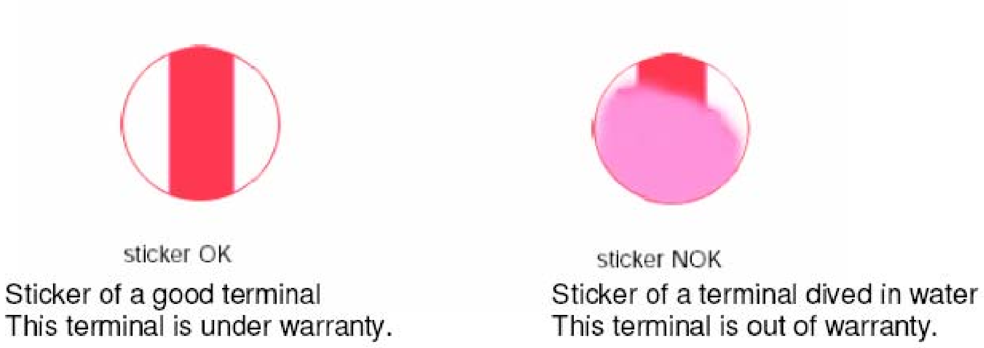
2. PRETEST AND VISUAL INSPECTION

(1). Check handset aspect.
(2). Humidity sticker: U10C cellphones are fitted with a sticker detecting liquid (on the frame). Check its state to decide whether it is under or out of warranty.



(3). Insert SIM card and check it is right fitting.
(4). Insert a battery, plug a charger on product. And check the icon on display.
(5). Switch on handset and check every key, display and backlight.
(6). Check the function of the vibrator (how?)
(7). Make a phone call with a communication tester, during the communication, check the communication and the function of Hands-Free.
(8). Check their function if the end user complains about music or other.

3. COLONING TOOL

(1). Find cloning tool on MLDC as below detail location:

(2). Install the cloning tool in your computer.

(3). The user manual on MLDC will guide you how to use the cloning tool:

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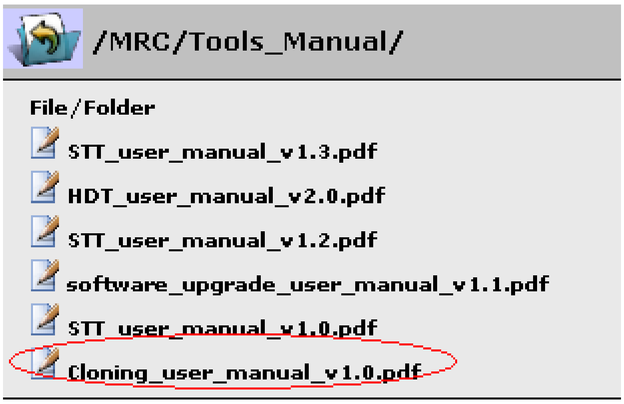
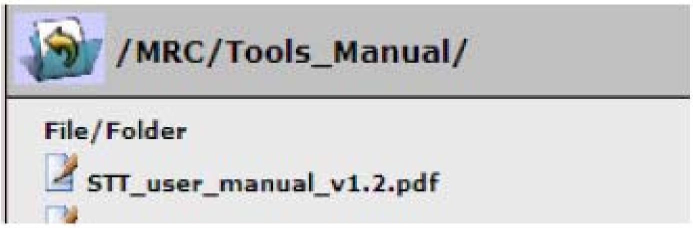


4. SAVE TEST TOOL

(1). Find STT on MLDC as below location:

(2). Install the STT on your computer.

(3). The user manual on MLDC will guide you how to use the STT:



5. SOFTWARE DOWNLODING

Software Upgrade tool is a method to download the software from Software

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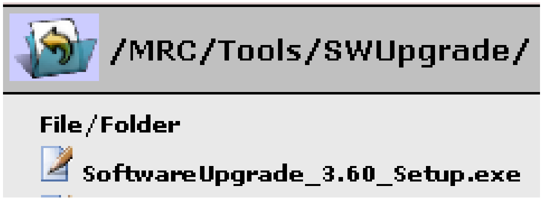
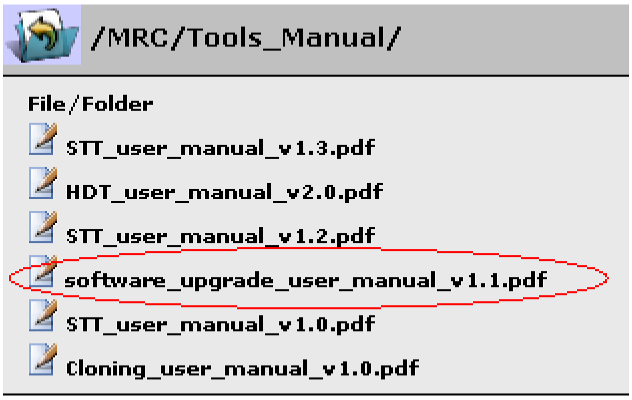
Upgrade server. Your internet connection is necessary during the process.

(1). Find Software Upgrade tool on MLDC as below location:



(2). Install the Software Upgrade tool in your computer.

(3). Follow the user manual from MLDC to upgrade the mobile:



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6. DISASSEMBLY AND REASSEMBLY

7.1 ESD SAFETY

Please wear static loop or static glove

7.2 DISASSEMBLY TOOLS

You may use the following tools during the disassembly and reassembly procedure:

Plastic Wedge	Screwdriver	Tweezers
Soldering iron	Connector bar	Hot wind gun
Soldering Jig	Hook	

Please make reference to APPENDIX 1 and find out the pictures of the tools.

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7.3 PROCESS

1. This is the frontage, back side & side of U10C.

2、Remove the Battery Cover from the buckle.

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2. There are 4 Screws, remove them with Screwdriver.

3. Remove Back Frame with Plastic Wedge.

4. Remove the FPC with Plastic Wedge, Separate Front Casing and Main PCB carefully.

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5. Remove Spring keypad casing with Tweezers.

6. Use forceps to press the hinge from the bottom, thumb push it to outer face, take out the furnished keypad casing.

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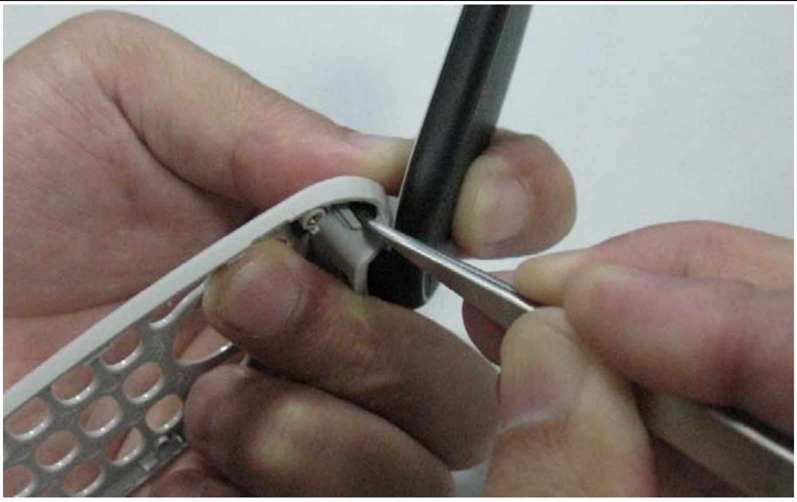
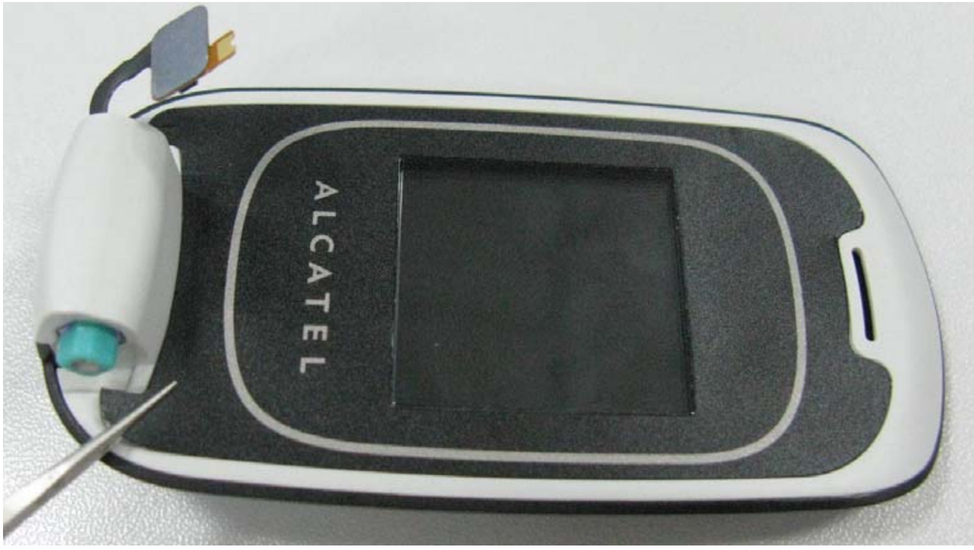


7. Remove front sticker with the forceps.



7. There are 4 Screws, remove them with Screwdriver.

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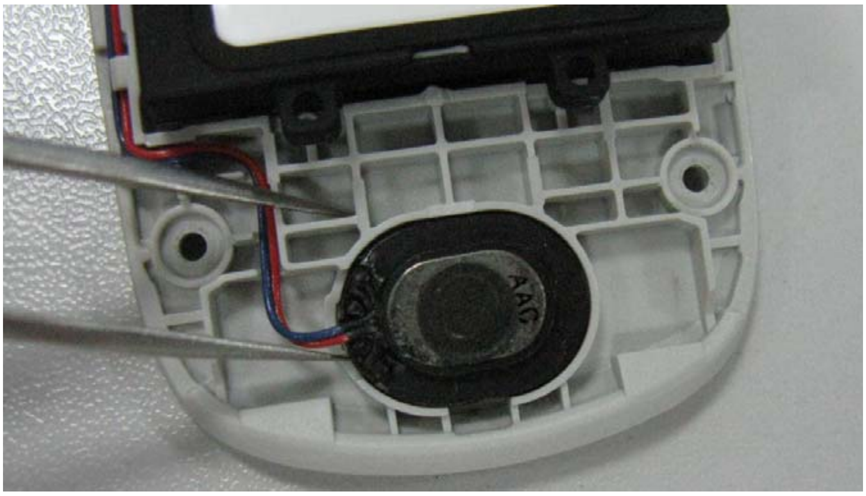
9. Remove Furnished back casing with Plastic Wedge.

10. Separate speaker and Furnished front casing with forceps.



11. Separate LCD PCB and Front Casing with forceps.

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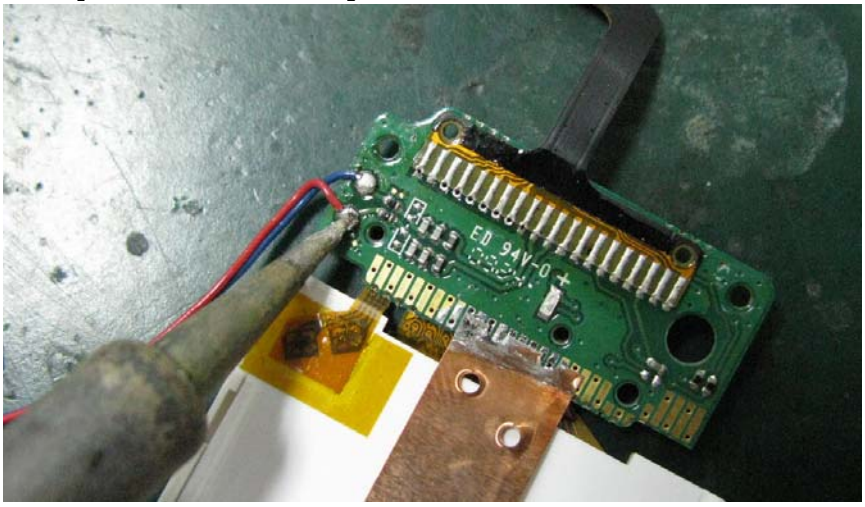
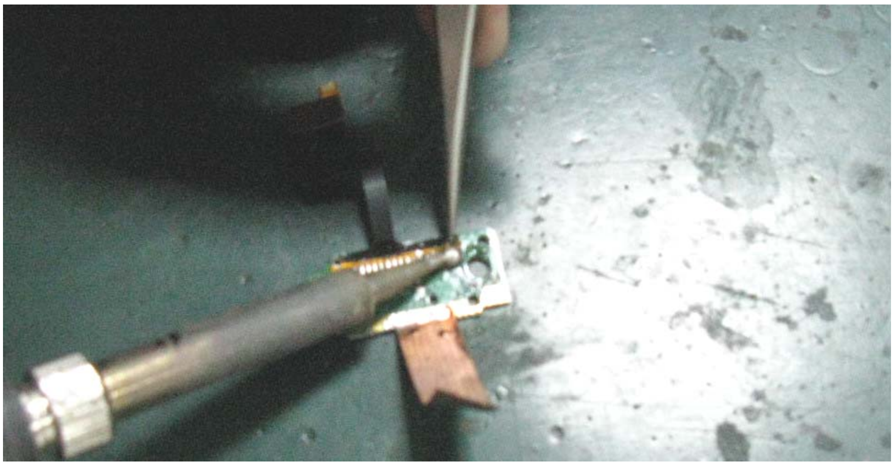
12. Remove speaker with Soldering Iron.



13. Pull the Double-sided tapes. Use moderate tin to disassemble the LCD.

14. Pull the Double-sided tapes. Use moderate tin to disassemble the FPC.



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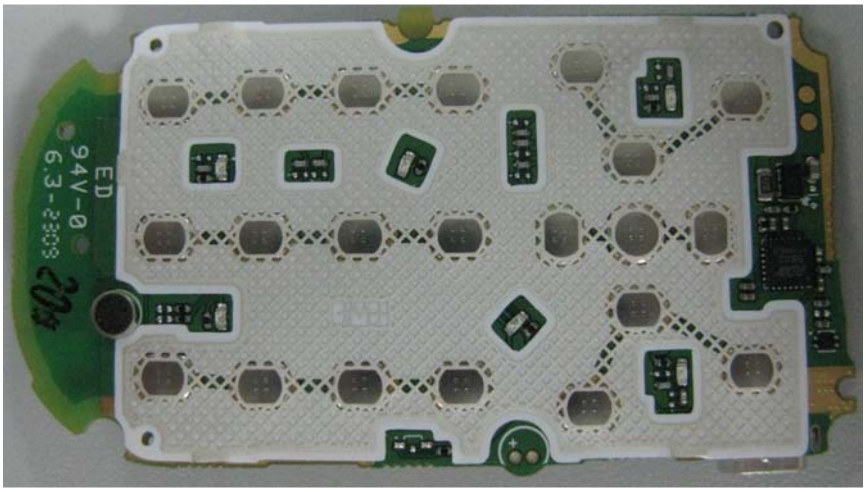
15. Both sides of main PCB.



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16. All the components of U10C.

7.4 REASSEMBLY PROCESS

Please make reference to the disassembly process for assembly reverse an order of the disassembly steps.

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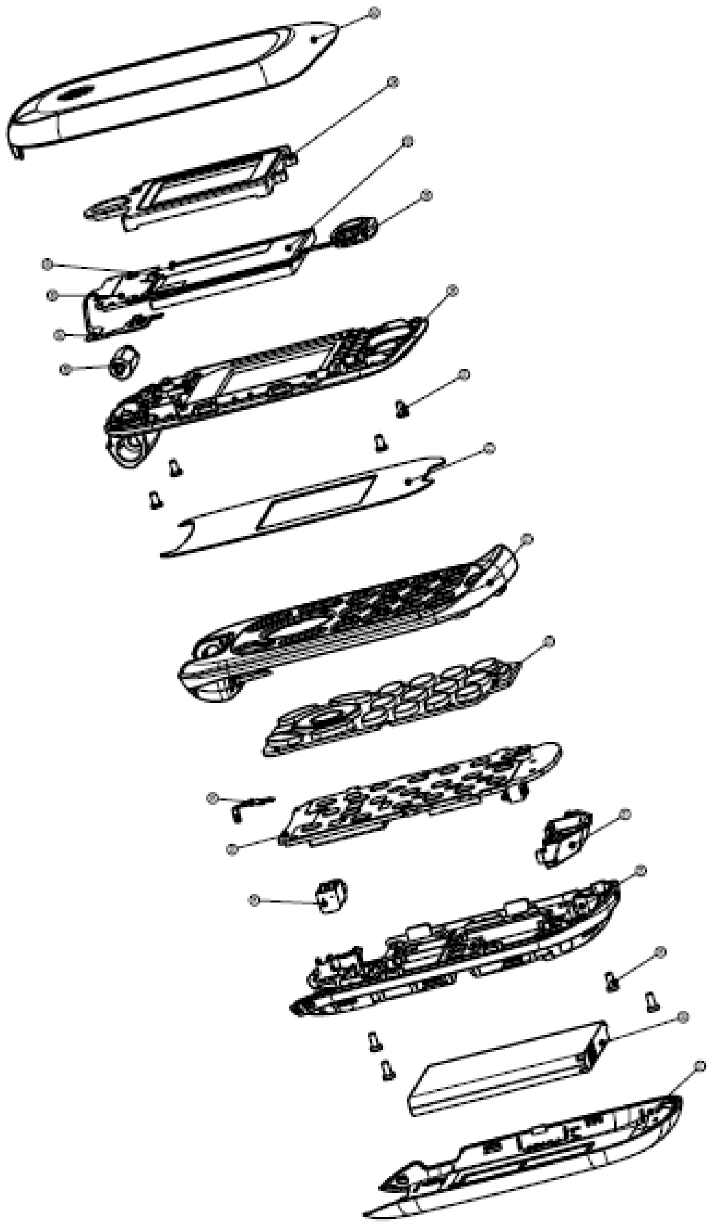
7.5 DISASSEMBLY COMPLETE



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Item	Description	Part Number	Type	QTY
01	Furnished Back Casing	BCE20W0**0C0	Assembly	1
02	LCD protect rubber	BNG20W0002C0	Part	1
03	Lcd module	AUA145T201C1	Part	1
04	SPEAKER & RECEIVER	AWA1115L02C1	Part	1
05	Antenna copper film	BMF20W0003C0	Part	1
06	FUR FLIP PCB	SBC20W00000C	Assembly	1
07	FUR MAIN FPC U10C	SBF20W00002C	Assembly	1
08	Hinge	BHA3010002C0	Part	1
09	Fur Front casing Dark grey	BCG20W0C00CX	Assembly	1
10	Back casing screw M1.6*3	T2000064AAAA	Part	4
11	Front sticker	BDA20W0A10C0	Part	1
12	Fur keypad casing Dark grey	BCA20W0C00C0	Assembly	1
13	Main keypad	BFA20W0*****	Part	1
14	Spring keypad casing	BMF20W0001C0	Part	1
15	FUR MAIN PCB	SBA20W0E000C	Assembly	1
16	Vibrator	T2003443AAAA	Part	1
17	Furnished Antenna	BBC20W0**0C1	Assembly	1
18	Furnished Frame	BCC20W0**0C0	Assembly	1
19	Frame screw M1.6*3.5	T2000534AAAA	Part	4
20	Battery Pack	CAB20G0000C1	Part	1
21	Battery Cover	BCK20W0**0C0	Part	1

8 LEVEL 2 REPAIR

This chapter describes the level 2 repairs that can be done without any diagnostic equipment.

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Item	Problem Description	Action and Solution
Charging	No charge	1. Check voltage of the battery: 2. Check the battery connection, change the battery connector if broken; 3. Check the charge plug, change it if necessary.
Power	Can not power on	1. Check voltage of the battery; 2. Check the connection between battery and handset; 3. Check the touch panel;
Display	Lines / Column / No display / Bad or no LCD backlight	Check the FPC, change it if necessary; Replace LCD module if necessary.
Key	Keyboard function fail	Check the touch panel connector, change it if necessary.
Vibrator	Vibrator fail	Check the contact on the PCBA (dirty or oxidized), replace the vibrator if necessary.
Network	No emission / No reception	Check the antenna contacts on the B cover; Check the contacts on PCBA.
Camera	Camera function fail	Check camera module ; Check the connection between camera module and PCBA
Audio	Bad or no emission (TX audio from mobile); Bad or no reception (RX audio on mobile); Hands-free problem; Melody problem	Check microphone, replace it if necessary; Check the contact on PCBA (dirty or oxidized); Check loud speaker, replace it if necessary;

In case the level 2 repairs can not solve the problem, or the board is damaged, exchange the board.

9 BOARD EXCHANGE

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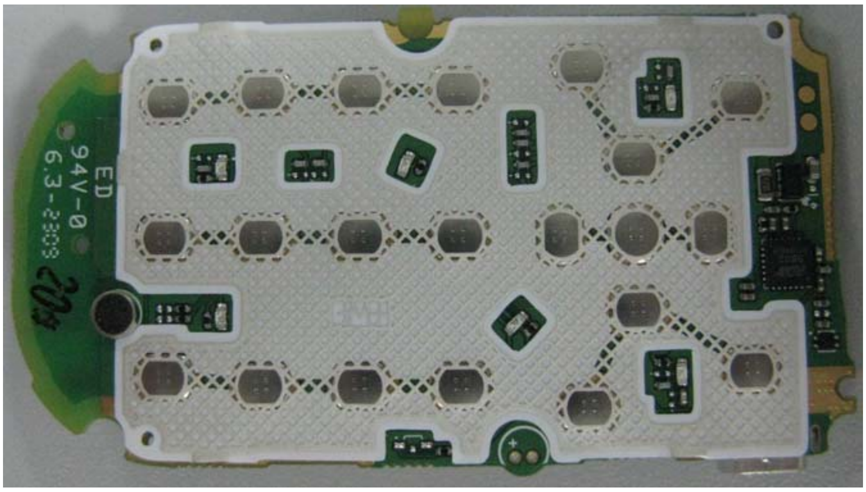
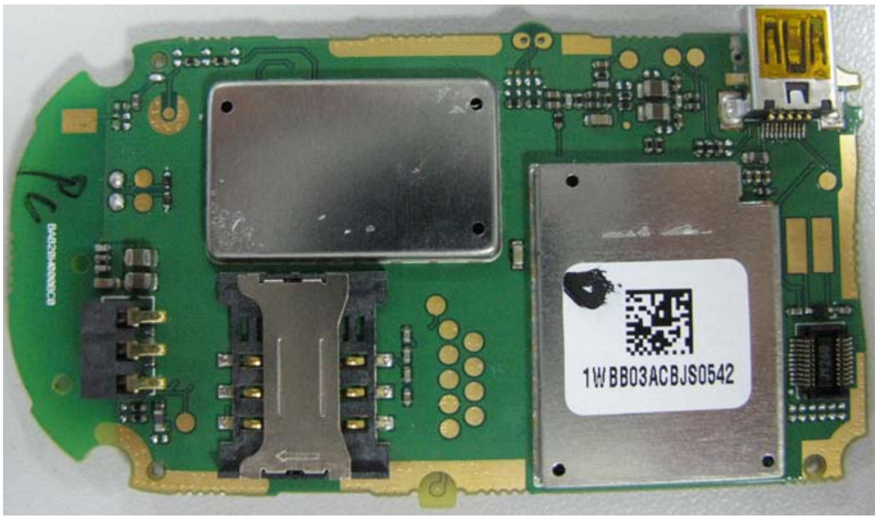
In case of Level 2 repair does not solve the failure, it is mandatory to change the board and apply the following process:

1). Prize up the faulty PCBA away **(Keep micphone on main board and remove accessory such as speaker, vibrator, side keypad FPC with hot wind gun.)**

For example:





10 OTHER COMPONENT EXCHANGE

The other components exchange like LCD module, keypad, vibrator, speaker, microphone, camera, FPC/audio/camera connector and related mechanical components, please follow the detail steps from paragraph 8 (Disassembly and

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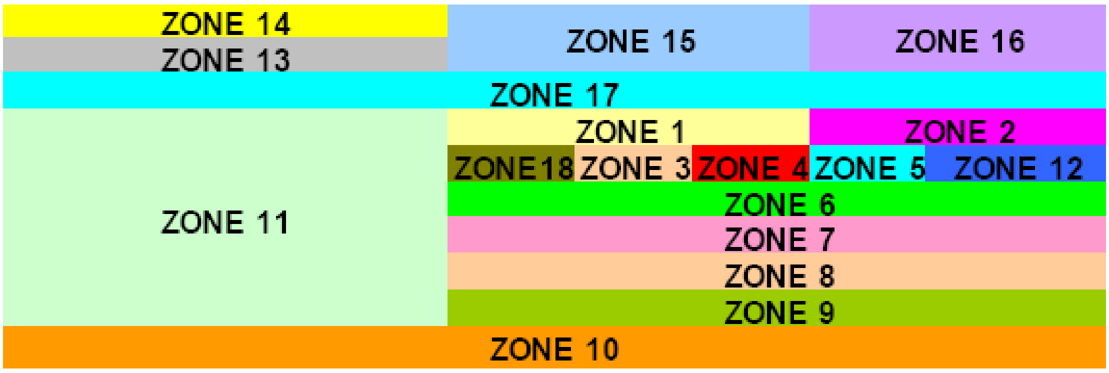
Reassembly process), but need to be very careful to handle the components with related special tool or jig (especially when replacing new components) and better to handle it with plastic tools (plastic tweezers and wedge etc.), besides must put static gloves, fingertips or wear static loop during the whole process of components exchange!

11 STICKERS

This sticker must be reprinted when the board is changed or upgraded. If the sticker is damaged, the phone must be excluded of manufacturer warranty.

Printing zone definition (CPE0000006C0 -------- For General, 33x16mm)



Baseline	Product name	Certification name	IMEI
U10C	*OT-222*	CE1588	TAC: 35591603
	OT-222A	FCC ID:RAD118	TAC : 01200300

For general countries:

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Zone	Variable	Signification
1	-	Product name: **XXXX**
2	-	**Distributor :** **For EMEA: TCT Mobile Limited** **For Latam: TCT MOBILE** **For CN:** 苏州 **TCL** 天一移动通信有限公司 **GSM** 双频 **GPRS** 功能数字移动电话机
3	DATA3	PTS='soft' techn. Release **xxx**
4	DATA10 or DATA 12	Short code **xxxx**
5	DATA2	PTM
6	-	**Made In (by)** … according to made in file
7	-	China version—**CMII:0000000000** / PCS version—**FCC ID:RAD 118**
8	DATA7	Commercial Ref
9	DATA5	Full IMEI
10	DATA5	Bar code IMEI
11	DATA5/DATA11/DATA2/ DATA3/DATA7	DATAMATRIX Code **IMEI No. / INDUS. REF. / PTH(PTM) / PTS / COM. REF.**
12	DATA4	Date Code **xxx**
13/14/15/16	-	**Special Logo**
17		**Remarker**
18	DATA18	"E"- Enhanced SIM Lock; "N"- Normal SIM Lock and No SIM Lock;
NO	DATA11	3DS (INDUS REF)

12 FINAL TEST

12.1 FUCTION TEST

During the function test, the following items must be checked and validated: Cosmetic aspect of the handset, the software technical sticker state on the board

- Switch on the handset
- Default welcome message
- The display and keypad backlight
- Function of all keys
- Function of vibrator
- Plug of a charger, right position of the charger, display of the charge indicator
- Check music and camera function

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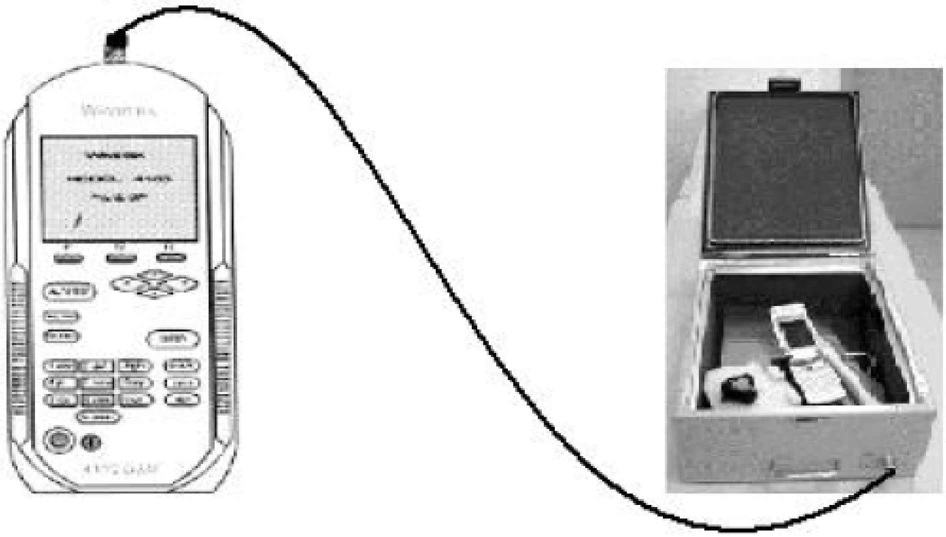
12.2 MEASUREMENT



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Measurements	Channels	Power levels	Tol.min	Tol.max	Conditions
GSM					
Connection Mobile	63*	9	None	None	Radiated meas
Call base from mobile	5*	9	None	None	Radiated meas
Power level measurements	5*	9	22 dBm	28 dBm	Radiated meas
Power level measurement	5*	5	31 dBm	35 dBm	Radiated meas
Peak Phase error measurements	5*	5	0°	20°	Radiated meas
RMS Phase error measurements	5*	5	0°	5°	Radiated meas
Frequency error measurements	5*	5	-90 Hz	+90 Hz	Radiated meas
RX Level (BS power level : -60dBm)	5*	5	45	55	Radiated meas
Power level measurements	120*	5	31 dBm	35 dBm	Radiated meas
Peak Phase error measurements	120*	5	0°	20°	Radiated meas
RMS Phase error measurements	120*	5	0°	5°	Radiated meas
Frequency error measurements	120*	5	-90 Hz	+90 Hz	Radiated meas
RX Level (BS power level : -60dBm)	120*	5	45	55	Radiated meas
DCS					
Power level measurements	515*	0	28 dBm	32 dBm	Radiated meas
Peak Phase error measurements	515*	0	0°	20°	Radiated meas
RMS Phase error measurements	515*	0	0°	5°	Radiated meas
Frequency error measurements	515*	0	-180 Hz	+180 Hz	Radiated meas
RX Level (BS power level : -60dBm)	515*	0	45	55	Radiated meas
Power level measurements	880*	0	28 dBm	32 dBm	Radiated meas
Peak Phase error measurements	880*	0	0°	20°	Radiated meas
RMS Phase error measurements	880*	0	0°	5°	Radiated meas
Frequency error measurements	880*	0	-180 Hz	+180 Hz	Radiated meas
RX Level (BS power level : -60dBm)	880*	0	45	55	Radiated meas
Keyboard test (1)	-	-	-	-	-
Audio test GSM	70*	9	None	None	Radiated meas

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Hang up	70*	9	None	None	Radiated meas
Call mobile from BS	700*	9	None	None	Radiated meas
Power level measurements	700*	0	27 dBm	33 dBm	Radiated meas
Audio test DCS	700*	0	None	None	Radiated meas
Hang up	70*	9	None	None	Radiated meas
PCS					
Connection Mobile	661*	5	None	None	Radiated meas
Call base from mobile	513*	5	None	None	Radiated meas
Power level measurements	513*	5	15 dBm	25 dBm	Radiated meas
Power level measurements	513*	0	25 dBm	35 dBm	Radiated meas
Peak Phase error measurement	513*	0	0°	20°	Radiated meas
RMS Phase error measurements	513*	0	0°	6°	Radiated meas
Frequency error measurements	513*	0	-180 Hz	+180 Hz	Radiated meas
RX Level (BS power level : -65dBm)	513*	0	35	55	Radiated meas
Keyboard test (1)	-	-	-	-	-
Power level measurements	880*	0	25 dBm	35 dBm	Radiated meas
Peak Phase error measurements	880*	0	0°	20°	Radiated meas
RMS Phase error measurements	880*	0	0°	6°	Radiated meas
Frequency error measurements	880*	0	-180 Hz	+180 Hz	Radiated meas
RX Level (BS power level : -60dBm)	880*	0	35	55	Radiated meas
Audio test 1900	683*	5	None	None	Radiated meas
Hang up	683*	5	None	None	Radiated meas
Call mobile from BS	683*	5	None	None	Radiated meas
Power level measurements	683*	5	15 dBm	25 dBm	Radiated meas
Hang up	683*	5	None	None	Radiated meas

- These values are given for indication, compatible low, middle and high channels have to be found.
- All keys must be test during a call except “end key”.

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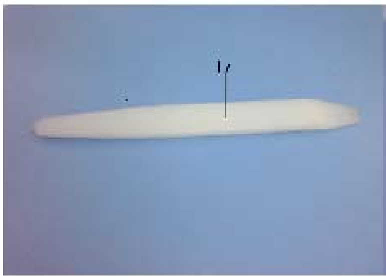
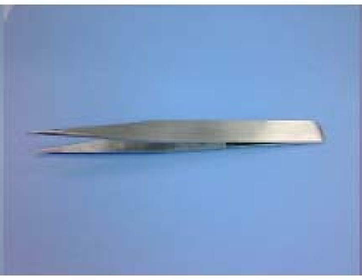
APPENDIX 1 TOOLS AND EQUIPMENTS FOR L2 REPAIR CENTER

1). Repair tools:

Plastic Stick Tweezers Steel

Screwdriver Connector Bar Soldering Jig

2). Other mandatory equipments:

Final test kit (charger, battery, back cover)
Final test interface
Bench and socket
Stickers

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APPENDIX 2 HDT FAULT CODES

CODE	LIST	DESCRIPTION
D05	ERROR_CODE_SERPRODNAME_FAIL	SERPRODNAME FAIL
D06	ERROR_CODE_COMCONF_FAIL	COMCONF FAIL
D07	ERROR_CODE_SETSCATTERFILE_FAIL	SETSCATTERFILE FAIL
D08	ERROR_CODE_SETERASEMODE_FAIL	SETERASEMODE FAIL
D09	ERROR_CODE_ONTERMINAL_FAIL	ONTERMINAL FAIL
D10	ERROR_CODE_READ_TRACE_FAIL	READ TRACE FAIL
D11	ERROR_CODE_INVALID_INDREF	INVALID H/S 3DS
D12	ERROR_CODE_INVALID_SC_OR_ICS	INVALID SHORT CODE OR ICS
D13	ERROR_CODE_INVALID_COLOUR	INVALID COLOUR
D14	ERROR_CODE_INVALID MSITE	INVALID MANUFACTURE SITE
D15	ERROR_CODE_INVALID_PRODDATE	INVALID PCBA PRODUCT DATE
D16	ERROR_CODE_INVALID_PCBASER	INVALID PCBA SERIAL
D17	ERROR_CODE_INVALID_PTM	INVALID PTM
D18	ERROR_CODE_INVALID_PTS	INVALID PTS
D19	ERROR_CODE_INVALID_TESTHISTORY	INVALID TEST HISTORY
D20	ERROR_CODE_READ_BDADDR_FAIL	READ BDADDR FAIL
D21	ERROR_CODE_READ_IMEI_FAIL	READ IMEI FAIL
D22	ERROR_CODE_GET_IMEI_FAIL	GET IMEI FAIL
D23	ERROR_CODE_LACK_IMEI_FAIL	LADK OF IMEI
D24	ERROR_CODE_WRITE_IMEI_FAIL	WRITE IMEI FAIL
D25	ERROR_CODE_CHECK_WRITE_IMEI_FAIL	CHECK WRITE IMEI FAIL
D26	ERROR_CODE_WRITTEN_IMEI_MISMATCH	WRITTEN IMEI MISMATCH
D27	ERROR_CODE_INVALID_IMEI	INVALID IMEI
D28	ERROR_CODE_RESIGN_IMEI_FAIL	RESIGN IMEI FAIL
D29	ERROR_CODE_DOWNLOAD_FAIL	DOWNLOAD FAIL
D30	ERROR_CODE_DOWNLOAD_META_FAIL	DOWNLOAD META FAIL
D31	ERROR_CODE_GET _BDADDR_FAIL	GET BDADDR FAIL
D32	ERROR_CODE_LACK_BDADDR_FAIL	LACK OF BDADDR
D33	ERROR_CODE_WRITE_BDADDR	WRITE BDADDR
D34	ERROR_CODE_WRITTEN_BDADDR_MISMATCH	WRITTEN BDADDR MISMATCH
D35	ERROR_CODE_CHECK_WRITE_BDADDR	CHECK WRITE BDADDR
D36	ERROR_CODE_INVALID_COMMREF	INVALID COMMERCIAL REF.
D37	ERROR_CODE_INVALID_SWLEV	INVALID SW LEVEL
D38	ERROR_CODE_INVALID_BENCHNAME	INVALID BENCHNAME
D39	ERROR_CODE_INVALID_ASTEC_DATA	INVALID ASTEC DATA
D40	ERROR_CODE_INVALID_MCVER	INVALID MAIN CODE VER
D41	ERROR_CODE_INVALID_LPVER	INVALID LANG PACK VER
D42	ERROR_CODE_INVALID_CPVER	INVALID CUST PACK VER
D43	ERROR_CODE_INVALID_SPVER	INVALID STUDY PARA VER
D44	ERROR_CODE_INVALID_SECUVER	INVALID SECU INFO VER
D45	ERROR_CODE_JTVER	INVALID JUMP TABLE VER
D46	ERROR_CODE_SCATTVER	INVALID SCATTER FILE VER
D47	ERROR_CODE_RPVER	INVALID RES PACK VER
D48	ERROR_CODE_WRITE_TRACE_FAIL	WRITE TRACE FAIL
D49	ERROR_CODE_CHECK_WRITE_TRACE_FAIL	CHECK WRITE TRACE FAIL

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D50	ERROR_CODE_WRITTEN_TRACE_MISMATCH	WRITTEN TRACE MISMATCH
D51	ERROR_CODE_OFFTERMINAL_FAIL	OFFTERMINAL FAIL
D52	ERROR_CODE_FR_COMM_FAIL	FR COMMUNICATION FAIL
D53	ERROR_CODE_COMM_DATA_FAIL	COMMUNICATION DATA FAIL
D54	ERROR_CODE_BACKUP_DATA_FAIL	BACKUP TUNING DATA FAIL
DUK	ERROR_CODE_UNKNOWN	UNKNOWN EEROR
DFF	ERROR_CODE_GEN_TRACE_FILE	GET TRACE FILE FAIL

APPENDIX 3 PACKAGING REQUIREMENT

PCBA shipment requirement:
Against Electrostatic
Avoid PCBA are laid to overlap each other
Against press outside package
Solution 1: Each PCBA is packaged by shielding bag, put each PCBA into each cave of the carton (see picture hereunder).

Solution 2: Stack by special trays (15 trays maximum), put empty trays to fill space inside the carton and all trays should be bound tightly in order to avoid PCBA move out (see picture hereunder).

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